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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,951	04/13/2004	Francis W. Daly JR.	543-99-036 CIP	5451

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EXAMINER

GUTIERREZ, ANTHONY

ART UNIT PAPER NUMBER

2857

DATE MAILED: 06/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/823,951

Applicant(s)

DALY, FRANCIS W.

Examiner

Anthony Gutierrez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otsuka et al. (US Patent 5,974,360) in view of Frank (US Patent 5,615,118), further in view of Kuntman (US Patent 5,077, 558).

As to claims 1, 13, 20, 22, and 29, Otsuka et al. discloses accessing a second weather radar image generated after a first weather radar image and having a similar relationship as a first weather radar image; spatially and temporally mapping said first weather radar image onto said second weather radar image; comparing said first and second weather radar images; and forecasting information describing a weather condition represented by said first and second weather radar images (col. 1, lines 35-43 and Figs. 11, 12, and 13).

Otsuka et al. does not specifically disclose a method wherein weather radar images are generated by a weather radar resident on-board an aircraft.

Frank however, discloses a method wherein weather radar images are generated by a weather radar resident on-board an aircraft (col. 4, lines 5-21 and col.7, lines 12-22).

Otsuka et al. further indicates that the method of invention can be used in fields such as airplane operation and control (col. Lines 53-62).

The method of Frank involves airplane operation and control by providing pilots with tactical information, including information about the severity of threats, such that the pilot may divert or take other corrective action (col. 5, lines 19-23 and col. 12, lines 15-33).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Otsuka et al. in the manner of Frank in order to provide a pilot with a highly accurate forecast of a weather image so that the pilot can better choose appropriate action based on the forecast.

Frank further discloses an onboard flight path optimization system with an onboard control display unit that includes lights, and keys for displaying data and inserting commands related to different phases of flight (modes) (col. 8, lines 38-59).

Neither reference specifically teaches generating a warning reflecting a threat to safety as a function of a flight path and a phase of flight.

Kuntman, however, discloses an airborne wind-shear detection weather radar (See Title, Figs. 1 and 2, and col. 1, line 59-col. 2, line 18) and teaches that an aircraft which traverses a microburst along a path will experience an increased headwind at the forward edge and an increased tailwind at the trailing edge which can result in a considerable loss of altitude at critical phases of flight. In the cited passages, Kuntman incorporates wind shear detection as it relates to differing phases of flight and further discloses the use of an alert related to wind shear probability detection regarding severity of a threat (col. 4, lines 27-30).

It therefore would have been obvious to one of ordinary skill in the art at the time of invention to incorporate into the combination of Otsuka et al. and Frank (which is concerned with an enhanced onboard weather radar for use in an onboard aircraft flight path optimization system) with the ability to generate alerts for wind shear detection as they relate to critical phases of flight with respect to the position of an aircraft along a flight path, since taking phases of flight into consideration with respect to the position of an aircraft and to the position of turbulence along a flight path, allows a pilot the flexibility to take greater caution during a higher probability of threat to safety, while eliminating the need to change a course when a threat to safety is at a minimum.

As to claim 3, 4, and 30 Otsuka et al. further discloses wherein said second weather radar image further comprises a weather radar image generated at a time after generation of said first weather radar image and wherein said comparing said first and second weather radar images further comprises comparing said first and second weather radar images as a function of said time between generation of said weather radar images (col. 2, lines 47-54).

As to claims 5 and 23, Frank further discloses a method further comprising displaying said forecast information describing said weather condition (col. 12, lines 46-49).

As to claims 6 and 7, Frank further discloses a method wherein said forecast information further comprises information sufficiently advanced in time as to allow an appropriate response and information advanced over one of a selectable period of time and a fixed period of time (col.12, lines 56-67).

As to claims 8-12, 14, 15, 17-19, 21, 24-28, and 31-35 Frank further discloses a method wherein said forecast information further comprises information describing a track of said weather condition, accessing an intended flight path of the aircraft; comparing said forecast track of said weather condition with said flight path; and predicting a coincidence of said flight path and said weather condition, and generating one or more of a visual alert and an aural alert as a function of said coincidence of said flight path and said weather condition (col. 13, lines 7-15, col. 14, lines 18-29 and 55-59, and col. 15, lines 8-13 and 35-48).

As to claim 16 Otsuka et al. further discloses wherein: each of said first and second weather radar images further comprise respective first and second images representative of said weather condition; said comparing said first and second weather radar images further comprises comparing first and second states of said weather condition; and forecasting a future state of said weather condition (col. 3, lines 55-62 and col. 4, lines 31-32 and col. 2, lines 47-54).

As to claim 36, Otsuka et al. further discloses an electronic circuit further comprising a display coupled to said processor and adapted to receive each of said weather radar image signals representative of weather information contained in said weather radar return signals and said signal representative of said future weather information, said display comprising a screen adapted to display each of said weather information contained in said weather radar return signals and said future weather information (col. 7, line 63- col. 8, line 37 and Figs. 1 and 2).

As to claim 37, Otsuka et al. further discloses an electronic circuit wherein said processor is further adapted to generate weather radar transmission signals; and further

comprising: a transmitter coupled to receive said weather radar transmission signals from said processor and output said weather radar transmission signals to a radar antenna; and a receiver coupled to receive weather radar return signals from a radar antenna and output said received weather radar return signals to said processor (col. 7, line 63- col. 8, line 37 and Figs. 1 and 2).

Response to Arguments

3. Applicant's arguments filed 12/13/04 have been fully considered but they are not persuasive.

All teachings addressed by the Examiner in this response can be found in the sections of the relevant reference, as cited in the previous Office Action.

Applicant's assertion that Kuntman is an improper reference

Kuntman is **not** an improper reference. The Applicant asserts that Kuntman is an improper reference because "It is known that for an application filed after November 29, 1999, a showing that the prior art and the claimed invention were, at the time the invention was made, owned by the same person is sufficient to overcome the rejection."

The Applicant says that "It is known", but does not indicate the source of this knowledge. The Examiner therefore assumes for the sake of this Office Action that the Applicant is referring to the subject matter discussed in MPEP 706.02(I)(1), which addresses the change to 35 USC 103 (c), that came into effect on November 29, 1999, as it applied to references which contain subject matter used in a rejection under 35

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USC 103 that with respect to their priority date are of 35 USC 102(e) type. The condition to overcome the rejection addressed by the Applicant does not apply to references that contain subject matter used in a rejection under 35 USC 103 that with respect to their priority date are of 35 USC 102(b) type.

Kuntman has an issue date of Dec. 31, 1991. It is a 35 USC 102(b) type reference. Therefore, Kuntman has not been shown to be an improper reference.

Applicant's discussion of the combination of Otsuka and Frank

The Applicant asserts that the Examiner has admitted that neither reference in the combination disclose or suggest accessing a phase of flight of the aircraft. The Examiner cannot find where he has admitted this. The cited sections of Frank actually disclose that "still yet another object of the present invention is to provide a onboard aircraft flight path optimization system wherein the onboard control display unit further includes an onboard climb light, on onboard cruise light, and an onboard descent light to indicate flight mode of the onboard performance management system computer." The Examiner considers this to suggest accessing a phase of flight.

The Examiner however stated that neither reference specifically taught generating a warning reflecting a threat to safety as a function of a flight path and a phase of flight.

Essentially the combination of references provides an enhanced onboard weather radar that is used in determination of optimal flight paths such that microbursts and other sources of clear air turbulence are evaluated by an onboard computer to determine an optimal, economical, and savings-providing flight path for a pilot. The

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reference of Frank contributes to the combination by providing the flight path optimization features and the Otsuka reference contributes to the combination by provides an optimal image processing for the weather radar.

While Otsuka, is silent on the subject, the cited passages of Frank do indicate generating an alert (warning) reflecting a threat to safety as a function of a flight path. Since Frank is concerned with flight path optimization, and since Frank takes care to mention that the onboard control display unit includes light indicating of a flight mode (phase) of the onboard performance management system computer, the Examiner believes that it is quite likely that the mode (phase of flight), is a relevant variable to the warning generation step, but since it is not specifically disclosed, the Examiner felt it necessary to rely on the Kuntman reference to teach why one of ordinary skill in the art at the time of invention would find it obvious to take into consideration, in generation of the warning.

Applicant's three points regarding the Kuntman reference

The Applicant's summarizes his first point regarding Kuntman to say that phase-of-flight-dependent activation and de-activation of the wind shear detection device cannot possibly suggest generating a warning as a function of the phase of flight. If it is recognized, however, that the Examiner cited where Kuntman discloses generating alerts when the wind shear detection device is activated, then the Examiner disagrees.

Kuntman discloses that wind shear when detected leads to an alert provided by the detection device. Kuntman also discloses that this is important for critical phases of flight, yet not important enough for non-critical phases of flight that the wind shear

detection mode is not even activated. The Examiner therefore believes that since an alert is generated only when wind shear is detected and only when the device is in wind shear detection mode, and since the device is only in detection mode during critical phases of flight, the Examiner believes that "generating a warning as a function of the phase of flight" is disclosed in the Kuntman reference.

Regarding the Applicant's second point, the Examiner has already addressed above how the step of generating an alert based on wind shear, which is detected during critical phases of flight, is taught by Kuntman.

Regarding the Applicant's assertion that the Examiner is using impermissible hindsight to generate the warning, the Examiner continues to maintain, that in view of the teaches of Frank (as part of the combination with Otsuka), one of ordinary skill in the art would find it obvious to incorporate phase of flight (as taught by Kuntman) into the alert generation system (that Frank discloses).

Frank and Kuntman are both concerned with the detection of microbursts (windshear) and then generating an alert when they are detected because of the potential threats they impose on control of the aircraft. Kuntman discloses detecting the windshear in front of the airplane. Frank discloses determining the local wind (amongst other factors, like temperature) that occurs at the aircraft and relates it to winds at a remote position for determination of an optimal and economic flight path.

The Examiner believes that one of ordinary skill in the art (in view of Kuntman), especially in view of the fact that Frank discloses the use of display indicators for flight modes (phases), would realize that it would be unnecessary to go through the effort to

apply the method of Frank to detect windshear during non-critical phases of flight, but even if detected, it would behoove the pilot to recognize that when phases are non-critical, responding to windshear detection, as though they are in occurrence during critical phase of flight, would unnecessarily lead to searching for a different flight path in order to avoid the windshear, and this would not be optimal or economic, and would reduce the amount of savings that a flight path optimization system that did take phase of flight into considerations, would otherwise accrue.

As to Applicant's third point, regarding the position of an aircraft along a flight path, a retrieved flight path, an intended flight path, or a future flight path, the Examiner again refers to Frank who takes all these things into consideration, although as addressed above, not specifically until further combined with Kuntman, to incorporate the phase of flight considerations.

The Examiner having relied on Frank to teach these specific limitations as they relate to future or intended positions of an aircraft along a flight path, had further attempted to demonstrate the relevance of Kuntman to Frank, by pointing out in Kuntman Figure 1 (with related discussion) that shows an aircraft (18), an aircraft (flight) path, and the downdraft produced by a microburst that affects the aircraft during critical phases of flight, depending on the position of the aircraft along that path.

The Examiner therefore believes that the combination of Otsuka, Frank, and Kuntman, teach all limitations previously presented.

With respect to the limitation of newly amended claim 13 and new claim 38, regarding the severity of threat, the Examiner finds nothing in the Specification to address this specifically enough to distinguish it from the severity of threat addressed by Frank that would be severe enough to necessitate a different flight path, or the severity of threat addressed by Kuntman in which one threat is not significant enough unless it is a critical phase of flight.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Gutierrez whose telephone number is (571) 272-2215. The examiner can normally be reached on Monday to Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc Hoff can be reached on (571) 272-2216. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AG

Anthony Gutierrez

6/10/05



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